

PROJECT DESCRIPTION

THIS PROJECT INVOLVES RECONSTRUCTION OF THE TRAFFIC SIGNAL AT THE INTERSECTION OF MD 528 & 139TH STREET INCLUDING APS PUSHBUTTONS, LED COUNTDOWN PEDESTRAIN SIGNAL HEADS, LED TRAFFIC SIGNAL HEADS AND VIDEO DETECTION. MD 528 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

INTERSECTION OPERATION

THIS INTERSECTION WILL OPERATE IN A NEMA SIX-PHASE FULL-TRAFFIC-ACTUATED MODE WITH ALTERNATE PEDESTRIAN PHASES FOR THE NORTH AND SOUTH LEGS OF THE INTERSECTION. THE MD 528 LEFT TURNS OPERATE IN EXCLUSIVE-PERMISSIVE PHASING.

CONTROLLER REQUIREMENTS

A FULL-TRAFFIC-ACTUATED EIGHT PHASE TRAFFIC SIGNAL CONTROLLER WITH TELEMETRY CABLE HOUSED IN A BASE MOUNTED CABINET SHALL BE FURNISHED BY SHA AND INSTALLED BY THE CONTRACTOR. VIDEO DETECTION INTERFACE EQUIPMENT SHALL BE FURNISHED BY SHA. AN APS CENTRAL CONTROL UNIT SHALL BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY SHA.

SPECIAL NOTES

APS WILL FUNCTION AS FOLLOWS:

TO CROSS COASTAL HIGHWAY:

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS COASTAL HIGHWAY AT 139TH."
- B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

EQUIPMENT LIST "B"

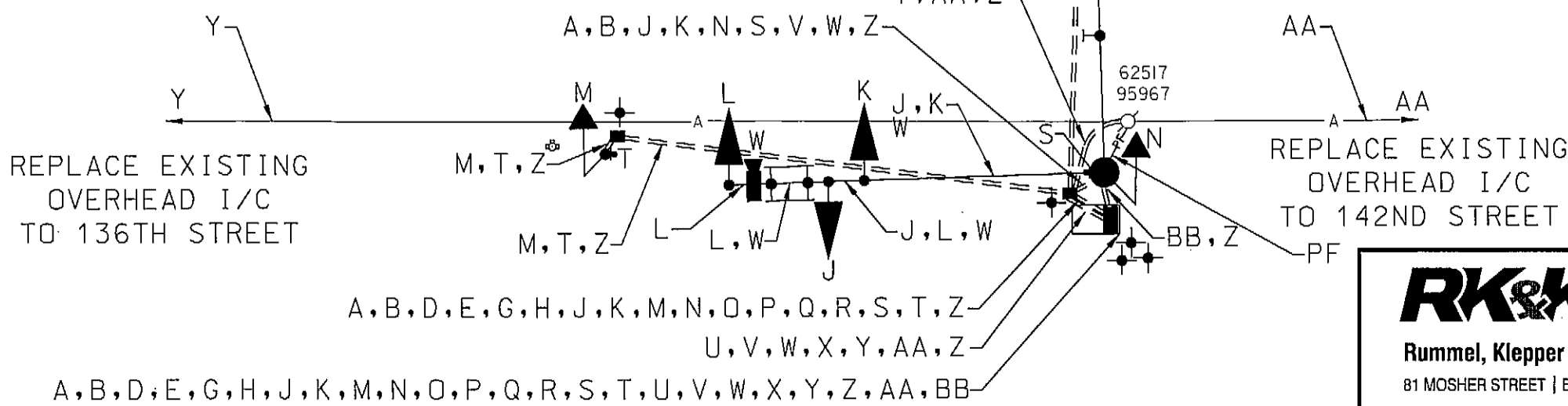
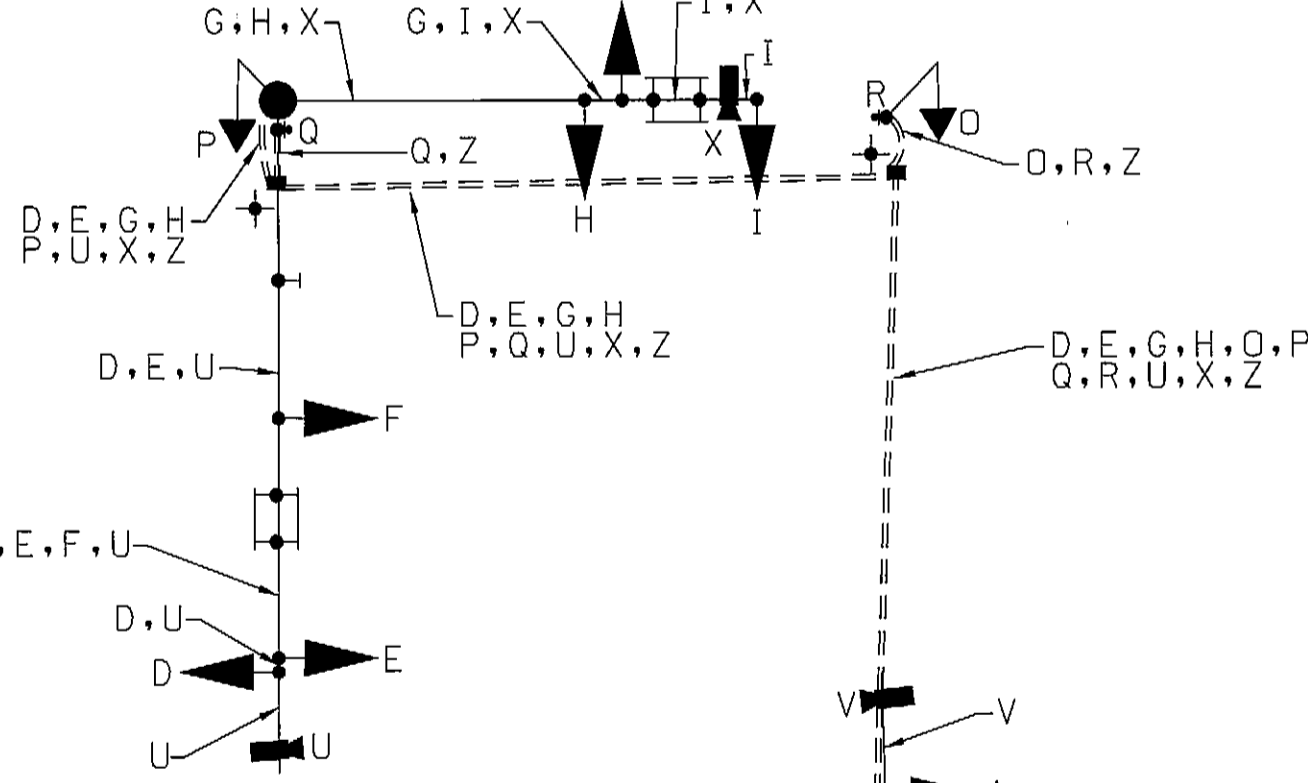
B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.

| ITEM NO. | DESCRIPTION   | UNIT | QUANTITY |
|----------|---|------|----------|
| 1003     | MAINTENANCE OF TRAFFIC  | EA   | 3        |
| 2002     | TEST PIT EXCAVATION   | CY   | 5        |
| 5005     | REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS ANY WIDTH            | LF   | 1035     |
| 5006     | F & I 12" WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES            | LF   | 1000     |
| 5007     | F & I 24" WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES            | LF   | 30       |
| 6001     | F & I STANDARD TYPE A COMBINATION CURB AND GUTTER 12" GUTTER PAN 8" DEPTH | LF   | 262      |
| 6002     | F & I 5" CONCRETE SIDEWALK  | SF   | 1167     |
| 6003     | F & I DETECTABLE WARNING SURFACE FOR CURB RAMPS                           | SF   | 88       |
| 8001     | F & I 2 WIRE CENTRAL CONTROL UNIT   | EA   | 1        |
| 8004     | ADJUST EXISTING HANDHOLE TO GRADE INCLUDING COLLAR                        | EA   | 1        |
| 8007     | F & I AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION & SIGNS               | EA   | 4        |
| 8008     | F & I BREAKAWAY PEDESTAL POLE (ANY SIZE)                                  | EA   | 3        |
| 8021     | REMOVE & DISPOSE MATERIAL AND EQUIPMENT PER ASSIGNMENT                    | EA   | 1        |
| 8024     | F & I TWIN MAST ARM POLE & 50'/70' MAST ARMS ANY 'T' DIMENSION            | EA   | 2        |
| 8025     | F & I VIDEO DETECTION CAMERA AND CABLE UP TO 500'                         | EA   | 4        |
| 8032     | F & I SCHEDULE 80 RIGID PVC CONDUIT UP TO 4" - BORED                      | LF   | 270      |
| 8034     | F & I SCHEDULE 80 RIGID PVC CONDUIT UP TO 4" - TRENCHED                   | LF   | 110      |
| 8035     | F & I WOOD SIGN SUPPORTS UP TO 4 X 6                                      | LF   | 60       |
| 8036     | INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE)          | SF   | 36       |
| 8038     | F & I NO. 6 AWG STRANDED BARE COPPER GROUND WIRE                          | LF   | 400      |
| 8040     | F & I WEATHER HEAD, 3"  | EA   | 1        |
| 8042     | F & I ELECTRICAL UTILITY SERVICE EQUIPMENT 120/240 VOLTS 60 AMPS          | EA   | 1        |
| 8043     | F & I ELECTRICAL CABLE - 1 CONDUCTOR NO. 4 AWG - THHN/THWN                | LF   | 90       |
| 8045     | F & I ELECTRICAL HANDHOLE   | EA   | 4        |
| 8050     | F & I 12" LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION                       | EA   | 6        |
| 8052     | CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE                    | EA   | 2        |
| 8054     | F & I ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)                         | LF   | 570      |
| 8056     | F & I ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)                         | LF   | 700      |
| 8057     | F & I ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)                         | LF   | 1770     |
| 8065     | INSTALL CONTROLLER AND CABINET - BASE MOUNT                               | EA   | 1        |
| 8066-A   | 12-PAIR COMMUNICATION CABLE, SELF-SUPPORTING (OVERHEAD)                   | LF   | 2780     |
| 8067-A   | RELOCATE EXISTING TRAFFIC SIGNAL (ENTIRE CLUSTER)                         | EA   | 10       |
| 8068-A   | RELOCATE EXISTING PED SIGNAL  | EA   | 4        |
| 8071-A   | RELOCATE EXISTING SIGNS   | EA   | 7        |
| NEG      | RELOCATE PARKING BLOCK  | EA   | 2        |
| NEG      | CAP EXISTING INLET  | EA   | 1        |

EQUIPMENT LIST "C"

C. EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO THE STATE HIGHWAY ADMINISTRATION, 7491 CONNELLEY DRIVE, HANOVER, MARYLAND 21076.

SHA FORCES SHALL REMOVE THE CONTROLLER AND ALL AUXILIARY EQUIPMENT FROM THE CONTROLLER CABINET. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME PROPERTY OF THE CONTRACTOR. CONTRACTOR SHALL RETURN ALL VIDEO DETECTION CAMERAS REMOVED FROM THE INTERSECTION TO SHA SIGNAL SHOP.



TOD No: XX443-19  
SHA No: WO409A55/C55  
MD 528 @ 81" Street/MD 528 @ 139" Street

**RK&K**  
Rummel, Klepper & Kahl, LLP  
81 MOSHER STREET | BALTIMORE, MD 21217  
PH: (410) 728-2900 FAX: (410) 728-3160  
Engineers Construction Managers Planners Scientists  
www.rkk.com

PHASING CHART

NO PHASE CHANGE

GENERAL NOTES

- ALL EXISTING FOUNDATION TOPS WITHIN EXISTING SIDEWALK SHALL BE REMOVED 2" BELOW SIDEWALK GRADE AND NEW SIDEWALK SHALL BE INSTALLED TO BE FLUSH WITH FINAL GRADE.
- ALL PROPOSED FOUNDATION TOPS SHALL BE INSTALLED FLUSH WITH SIDEWALK GRADE.
- ACCESSIBLE PEDESTRIAN CONTROL EQUIPMENT SHALL BE DELIVERED TO THE SHA SIGNAL SHOP FOR TESTING AND PROGRAMMING PRIOR TO INSTALLATION. CONTACT MR. EDWARD RODENHIZER AT 410-787-7652 TO COORDINATE.
- LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MUTCD SECTION 4E.09 AND FIGURE 4E.2 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE." IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED, APPROVED BY THE DIRECTOR, OFFICE OF TRAFFIC AND SAFETY.
- PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18" FROM A 60" X 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
- THE 10' SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON TO FACE OF PUSHBUTTON, NOT CENTER TO CENTER OF POLE.
- PUSHBUTTON ARROWS AND SIGNS ARE TO BE ORIENTED PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
- ANY HARDWARE NECESSARY FOR THE INSTALLATION OF RELOCATED TRAFFIC SIGNAL EQUIPMENT SHALL BE INCIDENTAL TO THE PERTINANT RELOCATE PAY ITEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINALS AND PROPERLY LABEL EACH CABLE.
- THE CONTRACTOR SHALL COORDINATE WITH DISTRICT 1 TRAFFIC TO COORDINATE TRAFFIC SIGNAL TURN OFF AND TEMPORARY STOP CONTROL. CONTRACTOR SHALL VERIFY ANY EVENT OR DATE RESTRICTIONS PRIOR TO TRAFFIC SIGNAL TURN OFF.
- UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "MISS UTILITY" PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.
- THE CONTRACTOR SHALL VERIFY ALL POLE LOCATIONS PRIOR TO INSTALLATION.
- VIDEO DETECTION CAMERA LOCATION/ALIGNMENT SHALL BE COORDINATED WITH THE ENGINEER.
- THE CONTRACTOR SHALL CAP AND ABANDON CONDUIT FEEDING SIGNAL EQUIPMENT THAT IS REMOVED.
- ADA REQUIRES THAT ANY ABRUPT CHANGE IN ELEVATION IN SIDEWALK BE LESS THAN 1/4".
- VIDEO DETECTION CAMERAS FOR EAST AND WEST APPROACHES SHALL BE CHECKED IN THE FIELD BY THE ENGINEER PRIOR TO PERMANENT INSTALLATION TO ELIMINATE ANY POSSIBLE TELECOMMUNICATION CABLE CONFLICTS.
- OCEAN CITY DPW SHOULD BE CONTACTED A MINIMUM OF FOUR WEEKS PRIOR TO STARTING WORK ON THIS INTERSECTION TO COORDINATE DRAINAGE INLET RELOCATION. CONTACT OCEAN CITY DPW AT 410-524-4733.
- ALL HARDWARE NECESSARY FOR THE INSTALLATION OF RELOCATED TRAFFIC SIGNAL EQUIPMENT SHALL BE INCIDENTAL TO THE PERTINANT RELOCATE PAY ITEM.

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY THE SHA.

| ITEM NO. | DESCRIPTION                                      | UNIT | QUANTITY |
|----------|--|------|----------|
| 9042     | CONTROLLER ASC II WITH TELEMETRY                 | EA   | 1        |
| 9044     | CONTROLLER CABINET, SIZE 6                       | EA   | 1        |
| 9086     | VIDEO DETECTION INTERFACE EQUIPMENT: 1-4 CAMERAS | EA   | 1        |
| 9571     | SHEET ALUMINUM MAST ARM / POLE MOUNTED SIGN      | SF   | 36       |
|          | 4 - D-3(1) (72"x16")                             |      |          |
|          | 4 - R10-3(1) (9"x15")                            |      |          |

WIRING KEY

|                 |   |      |   |
|-----------------|---|------|---|
| Q,R,S,T         | 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)       | Y,AA | 12-PAIR COMMUNICATION CABLE (NO. 19 AWG) SELF-SUPPORTING OVERHEAD |
| C,F,I,L,M,N,O,P | 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)       | PF   | RELOCATED OVERHEAD POWER SERVICE BY DELMARVA                      |
| A,B,D,E,G,H,J,K | 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)       | Z    | STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)                      |
| BB              | 1-CONDUCTOR ELECTRICAL CABLE (NO. 4 AWG) 3 RUNS | +    | PROPOSED GROUND ROD   |
| U,V,W,X         | VIDEO DETECTION CAMERA CABLE                    |      |   |

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION  
MD 528 (COASTAL HWY.) AT 139TH ST.  
OCEAN CITY, MARYLAND

GENERAL INFORMATION SHEET

|                 |         |          |               |              |           |
|-----------------|---------|----------|---------------|--------------|-----------|
| SCALE           | NONE    | DATE     | NOVEMBER 2009 | CONTRACT NO. | XX4435185 |
| DESIGNED BY     | BJG     | COUNTY   | WORCESTER     |              |           |
| DRAWN BY        | BJG     | LOGMILE  | 23052800.49   |              |           |
| CHECKED BY      | BLB     | TIMS NO. | K186          |              |           |
| FAP NO.         |         | TOD NO.  |               |              |           |
| TS NO. 2316B-GI | DRAWING | SG-4     | OF 4          | SHEET NO. 5  | OF 7      |